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The Role of Elementary School Physical Activity in Combating Childhood Obesity

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THE ROLE OF ELEMENTARY SCHOOL PHYSICAL ACTIVITY IN COMBATING
CHILDHOOD OBESITY

A project based upon an independent investigation, submitted in partial
fulfillment of the requirement for the degree of Bachelor of Arts in Social Work

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The Role of elementary
School Physical Activity
In Combating Childhood
Obesity

ABSTRACT

Childhood obesity is currently on the rise because of the lack of emphasis on physical activity, overeating and malnutrition; it has especially been escalating in children of low income families. Physical education and recess in elementary and high schools are being eliminated or reduced as the requirements of the “No Child Left Behind Act”. This study compared the opportunities available to exercise in eleven low income, medium income, high income, and private elementary schools hypothesizing that low Socioeconomic status children may be at greater risk due to the cost of healthy food, neighborhood safety, and issues restricting at home physical exercise and play.

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- A) Weight Problems in families are increasing greatly.
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Introduction

Weight problems in families are increasing greatly, especially in low income families (Horodynski & Stommel, 2005). These weight problems, particularly obesity, stem from mal and under nutrition, lack of exercise, and overeating, (Evans et. al, 2006).

To determine being overweight, a body mass index is calculated from a person's weight and height to indicator the amount of body fat. Weight status is indicated by percentile ranges. Between the 5th and 85th percentile is a healthy weight, 85th to less than the 95th percentile is at risk of overweight, and equal to or greater than the 95th percentile is overweight ("About BMI for Children and Teens", 2006).

In 2006, the federal poverty threshold for a family of four with two children is an annual income of \$20, 444. ("Children in Poverty", 2007). Low income families with children ages birth-twelve years are at particular risk of mal and under nutrition (Horodynski & Stommel, 2005).

Behaviors that "relate to diet are established early in life and molded by family members" (Horodynski & Stommel, 2005). Children ages birth-twelve must develop physical activity habits, for those habits developed during childhood will most likely linger through adulthood. Those children who are not physically active regularly increase their risk of weight problems (Horodynski & Stommel, 2005).

Overweight and obesity is also common amongst children of low socioeconomic status (Pyle, Sharpkey, Yetter, Felix, Furlong, & Poston, 2006). Recent data has shown that more than half of African American and Hispanic children come from low income

families. This is significantly high for 25% of non Hispanic and white children come from low income families.

Childhood obesity is a disease that is likely to have long lasting physical, mental, and emotional consequences for the population (Goran, Reynolds & Lindquist, 1999).

Physical activity is defined as, “any bodily movement produced by the contraction of skeletal muscle that increases energy expenditure above the basal level” (Goran, Reynolds & Lindquist, 20, 1999). A physically active child has less of a chance of developing obesity.

The amount of overweight children in the United States has increased by 50% in the last two decades (Horodyski &Stommel, 2005). In the US, non Hispanic white children in low income children have a greater occurrence of overweight than those who live in higher income families (Rhode Island Kids Count, 2007). Child obesity in the US is the most prevalent amongst non-Hispanic Blacks and Mexican Americans (Rhode Island Kids Count, 2007). Poor children are two and half more likely to have insufficient amount of daily calorie intakes than non-poor children (Rhode Island Kids Count, 1996). Nationally, 16% of children and adolescents ages six through nineteen are overweight. This figure, determined in 2002, represents an increase of 45% from the next most recent study undertaken in 1994 (“Prevalence of Overweight among Children and Adolescents”, 2007).

In 1993, there were 11,000 hungry children in Rhode Island (“Rhode Island Kids Count, 1996). In addition, 30,000 children live in homes that are at risk of going hungry because of their lack of financial support (“Rhode Island Kids Count, 1996). 17.3% of Rhode Island children entering kindergarten in 2001 were obese but that number has

grown to 20.3% for the incoming kindergarten class of 2004 (Rhode Island Kids Count, 2007).

Researchers looked at Wyoming school districts and found that only 17% of elementary schools and 26% of secondary schools reported having a school wellness policy (Benham-Deal, Jenkins, Wallhead, & Byra, 2007). Half of adolescents ages 12-21 are inactive (Pyle, Sharpkey, Yetter, Felix, Furlong, & Poston, 2006). The amount of physical activity a child does has shown to decrease with age.

The average American child ages two through eleven is exposed to more than 20,000 television commercials per years (Brody et. al, 1981). It is estimated that of these 20,000 commercials, 5,000 are for food products, the majority of which are not healthy foods.

The issue of exercise and physical activity is important to social work because Social Workers work predominantly with low income populations. Social Workers educate and advocate for the needs of low income families. Social workers work with low income families and one of the major issues in low income families with children ages birth-12 is a decrease in the amount of physical activity. Therefore, this is an important issue for social workers. The Department of Children, Youth, and Families pride themselves on three principles; permanency, safety, and well being (Department of Children Youth and Families, 2007). Lack of physical activity impairs the well being of a child. A child who is not getting enough physical activity needs the attention of social workers to ensure that all three needs (safety, permanency, and well being) of the child are being met.

Obesity

25% of the children in the United States are affected by obesity (Goran, Reynolds, Linquist, 1999). This number has grown dramatically in the past forty years. From the years 1976-1980 obesity affected 15%. Then, from 1988-1991 it rose to 21%. Numbers are also reaching epidemic proportions when looking at those who are overweight or at risk of becoming overweight. In the 1960's, a survey showed that 4% of 6-11 year olds and 5% of 12-19 year olds were overweight (Pyle, Sharpkey, Yetter, Felix, Furlong, & Poston, 2006). Another survey in 1988 showed that 11% of both ages were classified as overweight. In 2002, 31.5% of youth were at risk for becoming overweight and 16.5% were classified as overweight (Pyle, Sharpkey, Yetter, Felix, Furlong, & Poston, 2006).

Demographic patterns in obesity appear evident in regards to age, race, and socioeconomic status (Goran, Reynolds, Lindquist, 1999). Specific periods of growth in a child's life are at greater risk for obesity than other periods. These **ages** are early infancy, pre-pubertal growth (between the ages of five and six years old where the BMI reaches a low point, and the adolescent growth spurt. The adolescent growth spurt is a time of greatest risk to girls. Obesity during adolescence is a predictor of the risk of obesity in adulthood.

The prevalence of obesity in local school children in Birmingham, Alabama differed by **race** (Goran, Reynolds, Lindquist, 1999). 21% of both Caucasian boys and girls at ten years old were obese, 26% of African American boys, and 38% of African American girls were obese.

Overweight and obesity is also common amongst children of low socioeconomic status (Pyle, Sharpkey, Yetter, Felix, Furlong, & Poston, 2006). Poor white adolescents are more than twice as likely to become obese than middle-upper class white adolescents. There are many factors that can influence why people of low socioeconomic status may not have the same health as the middle-upper class. Reasons include; health insurance, neighborhood and personal safety, local schools and their resources, local food stores and the extent to which they carry healthful foods, the price of food, private and public transportation, proclivity to watch television and participate in other sedentary activities, subsidized local, state, and federal programs, and access to gym and health clubs (Vieweg, Johnston, Lanier, Fernandez & Pandurangi, 2006).

Low socioeconomic status appears to be an important factor in child and adolescent obesity (Vieweg, Johnston, Lanier, Fernandez & Pandurangi, 2006). Low socioeconomic status children and adolescents ages 2-19 years were studied to examine the relationship between low SES and high BMI. 20.6% of subjects ages 2-5, 30.3% of subjects ages 6-11, and 30.4% of subjects ages 12-19 were either overweight or at risk of becoming overweight. More Hispanics than African Americans were overweight or at risk of becoming overweight (Vieweg, Johnston, Lanier, Fernandez & Pandurangi, 2006).

Urban communities experience many challenges in combating childhood obesity (Action for healthy kids, 2006). The first challenge is economic. Recent data has shown that more than half of African American and Hispanic children come from low income families. This is significantly high for 25% of non Hispanic and white children come from low income families. Low income parents work at least part time and the families eat at inexpensive foods that are not healthy. The second challenge is cultural norms.

Some cultures do not see being thin as attractive. They may not value the importance of healthy foods or exercise. The third challenge is the environment in which they live. Many urban children lack recreational fields and are exposed to high crime rates and traffic. This makes it challenging for children to engage in physical activity.

Effects of Obesity

Childhood obesity is a disease that is likely to have long lasting physical, mental, and emotional consequences for the population (Goran, Reynolds & Lindquist, 1999). Children who are overweight or at risk of becoming overweight have been consistently related to adults who suffer from disease and obesity (Pyle, Sharpkey, Yetter, Felix, Furlong, & Poston, 2006). Three fourths of obese twelve-year-olds also had obesity in adulthood. 48-74% of children who were in the upper twentieth percentile for weight continued in that percentile through adulthood. Adolescence is another important time, for 80% of obese adolescents become obese adults.

Extremely strong evidence connects childhood obesity with serious physical illnesses (Pyle, Sharpkey, Yetter, Felix, Furlong, & Poston, 2006). Obese children are more likely to develop hypertension, cardiovascular disease, gallbladder disease, osteoarthritis, menstrual irregularities, female infertility, and irregular ovulation. As many as 30% of women that are diagnosed with polycystic ovarian disease are obese. There has also been large increase in Type Two diabetes in children. In the last twenty years, there has been a tenfold increase in the number of pediatric Type Two diabetes. Type Two diabetes is increasing steadily amongst African American, Hispanic, Asian, and American Indian adolescents (Mourey, 2007).

Obese children and adolescents are likely to have high blood lipid levels, which is a risk factor for cardiovascular disease (Pyle, Sharpkey, Yetter, Felix, Furlong, & Poston, 2006). These children are also linked with high and low density cholesterol and triglycerides which also are risks of cardiovascular disease. Youth with obesity are nine times more likely than non obese youth to have high blood pressure, which can develop into hypertension. One study, (Sharma, 2005) found that by the time an overweight child turns ten years old, 60% of them have at least one biochemical or clinical cardiovascular risk factor and 25% of them have more than two risk factors.

Obese children are more likely to have higher levels of liver enzymes (Pyle, Sharpkey, Yetter, Felix, Furlong, & Poston, 2006). High levels of liver enzymes can cause liver diseases and gallbladder inflammation.

Sleep apnea (interruptions of breathing during sleep) is another problem associated with obesity (Pyle, Sharpkey, Yetter, Felix, Furlong, & Poston, 2006). 7% of children with obesity and 30% of very obese children suffer from sleep apnea. Symptoms of sleep apnea are learning and memory problems, increased risk of accidents, and depression. Related to sleep apnea, hypoventilation syndrome (the child does not breath sufficient oxygen) is also a risk of obesity.

An obese youth can also suffer from orthopedic problems (Pyle, Sharpkey, Yetter, Felix, Furlong, & Poston, 2006). Carrying around a large amount of weight can cause slipped capital epephses and Blount's disease. This results in intense hip and knee pain.

Children with obesity are at a greater risk of social, emotional, and psychological difficulties (Pyle, Sharpkey, Yetter, Felix, Furlong, & Poston, 2006). Children with obesity are at a higher risk of developing depression, eating disorders, distorted body

image, and low self esteem. Binge eating is six times more common in obese individuals than non obese individuals. It is estimated that 30% of older girls with obesity are binge eaters. Obese children also have more behavioral and emotional problems than their non obese peers. Obese adolescents ages 13-14 report more loneliness, sadness, and anxiety than their non obese peers. Oppositional defiant disorder in girls and depression in boys has been related to obesity. Obese children ages 9-12 report negative physical perceptions of themselves and have a lower sense of self worth.

Overweight children ages 6-10 are thought of as less desirable friends by their peers. Averaged weight children report their peers with obesity to have negative personality traits such as laziness and sloppiness.

The numerous amounts of health risks associated with obesity result in an astounding amount of money spent on healthcare (Goran, Reynolds & Lindquist, 1999). In the United States, states range from spending \$87 million (Wyoming) to \$7.7 billion (California) on treatment of individuals with obesity. Combined, this makes \$68 billion per year which is 6% of the total amount of money spent on health care in the United States. Money spent on obesity in children has increased dramatically in the past two decades. Costs have risen from \$35 million to \$127 million (Pyle, Sharpkey, Yetter, Felix, Furlong, & Poston, 2006).

Genetic research has expanded knowledge of obesity; however, it is highly unlikely that the overwhelming amount of obese children in the United States is because of a sharp change in genetics (Goran, Reynolds & Lindquist, 1999). A better explanation would be the cultural changes that have occurred in our country, such as a decreased requirement for physical activity and greater amounts of malnutrition.

Physical Activity

Physical activity is defined as, “any bodily movement produced by the contraction of skeletal muscle that increases energy expenditure above the basal level” (Goran, Reynolds & Lindquist, 20, 1999). Physical activity “results in an increase in energy expenditure due to the cost of the activity itself and is also hypothesized to increase resting metabolic rate (Goran, Reynolds & Lindquist, 23, 1999). Children can have physical activity in many ways, including play, chores, and exercise. Exercise is defined as, “behavior that is planned, structured, and repetitive, and undertaken for the purpose of improving or maintaining physical fitness” (Goran, Reynolds & Lindquist, 20, 1999).

Physical fitness is measured by exercise tests while physical activity is typically measured by self-report (Goran, Reynolds & Lindquist, 1999). Physical activity in young children is measured by direct observation (Hills, King, & Armstrong, 2007). Researchers use the Children’s Activity Rating scale to measure child activity which identifies activities and the intensity associated with them.

There are three different types of physical activity play that occur in early childhood (Hills, King & Armstrong, 2007). The first stage, during infancy, is called rhythmic stereotypes. This is where activities involve gross motor movements that do not have a purpose (such as kicking a foot or throwing up an arm). The peak of this stage is at 6 months. The next stage, exercise play, occurs when the child turns two years old. This is where activities involve gross motor movements for the purpose of play. The peak of this stage is 4-5 years old. When a child is four, 20% of a child’s play is physically vigorous. As the child gets a little older movement becomes less self-centered and more to gain approval from others. The third type of movement, which peaks at ages

8-10 is called rough and tumble play. This movement is primarily wrestling, kicking, and tumbling. Early childhood is a critical time to develop motor skills that provide the foundation for more complex movement needed later in life.

There are three elements of fitness; endurance, strength, and flexibility (www.kidshealth.org/parent/nutrition_fit/fitness/exercise.html). Children like adults, are able to do all three through play. Children use endurance when they run in a game of tag, they use strength when they use the monkey bars, and use flexibility when they tie their shoe.

In 1996, the Surgeon General released a statement on Physical Activity and Health that read, “All people over the age of two years should accumulate at least 30 minutes of endurance-type physical activity, of at least moderate intensity, on most preferably all days of the week” (Goran, Reynolds, & Lindquist, 20, 1999).

The National Association for Sport and Physical Education recommends certain amounts of physical activity for children based on their age (www.kidshealth.org/parent/nutrition_fit/fitness/exercise.html).

| Age | Minimum Daily Activity | Comments |
|-------------|-------------------------------|--|
| Infant | No Specific Requirements | Physical activity should encourage motor development. |
| Toddler | 1 ½ hours | 30 minutes planned physical activity and 60 minutes unstructured physical activity (free play) |
| Preschooler | 2 hours | 60 minutes planned physical activity and 60 minutes unstructured physical activity (free play) |
| School Age | 1 hour or more | Break up into bouts of 15 minutes or more. |

Chart received from (www.kidshealth.org/parent/nutrition_fit/fitness/exercise.html)

The Child Nutrition and Special Supplemental Nutrition Program for Women, Infants, and Children Reauthorization Act of 2005 required all school districts to develop a wellness policy that addresses physical activity and nutrition (Benham-Deal, Jenkins, Wallhead, & Byra, 2007). Researchers looked at Wyoming school districts and found that only 17% of elementary schools and 26% of secondary schools reported having a school wellness policy. In Wyoming, physical education is one of the eight common core subject requirements for graduation. In 2005, only 75% of Wyoming schools reported having a written school physical education curriculum.

There are several patterns of physical activity in the area of childhood (Goran, Reynolds, & Lindquist). Children engage in shorter periods of physical activity rather than longer periods of exercise like adults. Children tend to engage in high activity levels outside of school, mostly on the weekends in organized sports.

Research has shown that an active child will have many **physical benefits** including stronger muscles and bones, a leaner body because exercise helps control body fat, less likely to become overweight, decreased risk of developing type two diabetes, lower blood pressure and blood cholesterol levels, and have an overall better outlook on life (www.kidshealth.org/parent/nutrition_fit/fitness/exercise.html). Regular fitness also has beneficiary effects on weight, muscular strength, cardio respiratory fitness, and bone mass (<http://www.cdc.gov/nccdphp/dnpa/physical/recommendations/young.htm>). Regular weight bearing activities contribute to the growth of healthy musculoskeletal system, and helps maintain a desirable body composition through managing weight and body fat (Hills, King, Armstrong, 2007).

Benefits of Physical Activity

Skeletal health is established in childhood (Hills, King, Armstrong, 2007).

Physical activity is a major factor for healthy bones. Through physical activity bones are able to grow, model, and remodel. Growing determines the size of the bone, modeling determines the shape of the bone, and remodeling preserves the competence of the bone. Children, unlike adults, are able to improve their bone mass and density. The amount of bone mass and density that is achieved in early adulthood is the peak for life; therefore, one who has a large amount of mass and density will have healthier bones as they get older (Hills, King, Armstrong, 2007). The amount of bone dropped in adulthood is mostly determined by genetic factors; however, 20-40% is established by diet and physical activity (Hills, King, Armstrong, 2007).

It is important to target children's patterns of physical activity for the **habits that are learned** as a child will most likely carry through adulthood (Goran, Reynolds, Linquist, 1999). Physical activity in childhood can serve as a foundation for physical activity in adulthood.

Coinciding with the physical benefits of activity, physical activity also has **cognitive benefits**. (Tremarche, Robinson, Graham, 2007). Exercise supplies the blood with more oxygen which nourishes the brain. This allows more neurotransmitters and endorphins to release which develops more neural networks. Children who have greater amounts of physical activity develop more neurons and in return, are better learners. Connections in the brain are made through movement and students who are not active are unable to make those connections which do not enhance learning. Researchers in Massachusetts studied the effect that physical activity had on academic achievement in fourth grade (Tremarche, Robinson, Graham, 2007). Achievement was measured by the

scores students received on the Massachusetts Comprehensive Assessment System (MCAS) for fourth graders. Researchers compared two similar school systems. School One and School Two received 28 hours and 56 hours of physical education in a year, respectively. The students in School Two, who received more hours of physical education, scored significantly higher on all subjects of the MCAS than the students in School One.

Physical activity also has **psychosocial benefits** including reduction of depression, stress, and anxiety, and improvement of self confidence, self-esteem, energy levels, sleep quality, and ability to concentrate (Hills, King, Armstrong, 2007).

Physical Activity in Children

With all the benefits of physical activity, studies are showing that children are not as physically active as they should be. A study conducted in 1988 looked at the physical activeness of children ages 8-16 years old in a national sample of 4063 children (Goran, Reynolds, & Lindquist, 1999). Results showed that 20% of US children do not exercise vigorously more than twice per week. 67% of children watch 2 hours of television per day.

Half of adolescents ages 12-21 are inactive (Pyle, Sharpkey, Yetter, Felix, Furlong, & Poston, 2006). The amount of physical activity a child does has shown to decrease with age.

The Youth Risk Behavior Survey of 2003 (Sharma, 2005) showed that 34.4% of students did not participate in at least 20 minutes of vigorous activity on 3 or more of the past 7 days or participate in moderate physical activity 5 out of the past 7 days.

There are multiple factors that influence children's physical activity (Goran, Reynolds, & Lindquist). These factors are physiological, psychological, sociocultural, and environmental. Examples of physiological factors that can influence a child's amount of physical activity are biological or developmental characteristics that inhibit or promote the child's ability to be active. Psychological factors are characteristics such as motivation or sense of control.

Sociocultural factors include role models, age, gender, or ethnicity (Goran, Reynolds, & Lindquist). The role models a child has have a great influence on the activeness of the child. Children whose parents are physically active have been shown to be significantly more active than children with inactive parents. Peers and siblings have even a greater influence on physical activeness than do parents. Boys have shown to engage in higher levels of physical activity, participate more in sports, and have higher levels of aerobic fitness than girls.

Environmental factors include availability of facilities, safety, and climate (Goran, Reynolds, & Lindquist). The National Children and Youth Fitness Study said that physical activity for children is highest in the summer than decreases in the fall in winter, then increases again when spring comes.

There are many advantages to using physical activity interventions in a school (Goran, Reynolds & Lindquist, 1999). 95% of children ages 5-17 are in school; therefore, schools are a perfect place to access children with physical activity programs. The children who do not have family environments where physical health is promoted are able to receive that guidance from their school.

Role of Schools in Promoting Wellness

Schools play an important role for promoting health and wellness of its students (www.cdc.gov/HealthyYouth/physicalactivity/promoting_health/schools). Schools can promote physical activity through quality daily physical education. Classroom health education along with physical education also gives students the skills needed to live a physically active lifestyle. Daily recess for elementary schools also provides students with a time to be physically active during the school day. After school extracurricular programs such as dance or hiking give students a non competitive environment where students can enjoy being physically active without pressure to win.

The American Academy of Pediatrics (Preboth, 2000) has adapted recommendations for schools to promote fitness for all of their students. Recommendations include:

- Help schools to adapt programs to meet the needs of children and adolescents who have activity limitations because of temporary or chronic illness, injury or developmental disability.
- Provide schools and children with safe options for continuing with physical activity, even when students are affected by illness, injury or disability.
- Identify and encourage the appropriate use of safety equipment for sports and physical activities in all settings.
- Assess activity patterns as part of routine health maintenance and provide advice about ways of increasing physical activity levels.
- Encourage physical activity at the family and community levels
- Help to identify and reduce barriers to regular physical activity, including doubts, fear of injury and the lure of more sedentary pursuits.
- Work to ensure the availability of funding and personnel resources (Preboth, 2000).

Another reason why schools are excellent places for physical activity intervention is because youth are interested (Pyle, Sharpkey, Yetter, Felix, Furlong, & Poston, 2006). Interviews with inner city high school students were conducted assessing the perspective students have on school based interventions with obese or overweight students. Students reported that given a supportive environment, they would be interested in participating in such an intervention.

There have been several school based interventions that have been done to prevent childhood obesity (Sharma, 2005). These interventions include:

| Study/Grade/Age/Year | Theory | Intervention | Duration | Major Findings |
|--|-------------------------|--|---|--|
| PE Time Kindergarten 5-6 years old 1998-1999 | No known Theory | Increase Physical education instruction time | One academic year | Reduced BMI in overweight girls (coefficient=-.31, $p<0.001$) |
| Be Smart 1 st -2 nd graders 5-7 years old 2000-2001 | Social Cognitive Theory | Healthy Nutrition Promote Physical Activity | 4 School terms | Improvement in nutrition knowledge ($p<.01$) Improvement in fruit ($p<.01$) and vegetable ($p<.01$) intake. |
| APPLES 2 nd -4 th graders 7-11 years old 1996-1997 | No known Theory | Teacher Training, Modification of school meals, development of action plans, physical education, playground activities | One academic year | No change in BMI, vegetable consumption higher, No change in physical activity. |
| Stanford GEMS 2 nd -4 th grade 8-10 years old 2001 | Social Cognitive Theory | After-school dance Reduction of T.V | Dance: 5 days per week x 3 months Home Intervention: 5 lessons | Lowered BMI (-.32 kg m ⁻²) Waist (0.63 cm), PE activity (55.1 counts min ⁻³) reduced TV (-4.96 h week ⁻¹) less concern about weight ($d=.60$) improved grades ($d=.51$) |
| Project Spark 4 th -5 th grade 9-11 years old 1990-1991 | Self-management | Physical Activity in and out of school. Self management curriculum | PE classes: 3 days a week x 36 weeks Self management programs 30 minutes x 32 sessions for each grade. | PE activities increased at school (15-22 minutes; $p<.001$) Girls showed improvement in abdominal strength & endurance ($P<.001$) and cardiorespiratory ($p<.001$) |

Physical Education

Physical education is important for students to gain knowledge, skills, and confidence that one needs to be physically active throughout life

(www.cdc.gov/HealthyYouth/physicalactivity/promoting_health/schools). Physical education associations, academic experts, and teachers are promoting quality physical education. Quality physical education is a teaching philosophy that

provides intensive instruction in the motor and self-management skills needed to enjoy a wide variety of physical activity experiences, including competitive and noncompetitive activities, keeps all students active for most of the class period, builds students' confidence in their physical abilities, influences moral development by providing students with opportunities to assume leadership cooperate with others, and accept responsibility for their own behavior

(www.cdc.gov/HealthyYouth/physicalactivity/promoting_health/schools, 2).

Quality physical education must be enjoyable for enjoyment during physical education is more likely to encourage physical activeness outside of school.

An important aspect of quality physical education is the teacher (www.cdc.gov/HealthyYouth/physicalactivity/promoting_health/schools).

Teachers should be appropriately trained to teach physical education. Only 7 states require their physical education teachers to be certified as a physical education specialist. Research has shown that physical education specialist teach longer and higher quality classes where students are more physically active than classroom teachers.

Another important aspect of quality physical education is to be able to provide adapted physical education to students with disabilities (www.cdc.gov/HealthyYouth/physicalactivity/promoting_health/schools). The Individuals with Disabilities Education Act states that physical education must be

available to every child with a disability. Every child with a disability must be given the opportunity to participate in physical education classes with non disabled children. A quality physical education class should be the same size as any other subject. With too many students, teachers are unable to keep everyone active and be able to give enough individual attention to students.

The National Association for Sport and Physical education developed national standards for Physical education

(www.aahperd.org/naspe/template.cfm?template=publications). Many states (including Rhode Island) have adopted these standards to develop their own standards of physical education. These standards include:

- Standard 1: Demonstrate competency in motor skills and movement patterns needed to perform a variety of physical activities
- Standard 2: Demonstrate understanding of movement concepts, principles, strategies, and tactics as they apply to the learning and performance of physical activities.
- Standard 3: Participate regularly in physical activity
- Standard 4: Achieve and maintain a health-enhancing level of physical fitness.
- Standard 5: Exhibit responsible personal and social behavior that respects self and others in physical activity settings.
- Standard 6: Values physical activity for health, enjoyment, challenge, self expression, and/or social interaction

Unfortunately, not all schools are taking part in physical activity interventions (Benham, Jenkins, Wallhead & Byra, 2007). The Child Nutrition and Special Supplemental Nutrition Program for Women and Infants Act of 2005 requires all schools who receive federally funded meals to develop a wellness policy. Unfortunately, in a sample of 163 schools in Wyoming, only 17% of elementary schools and 26% of secondary schools had a wellness policy. 75% of the schools reported having a physical

education curriculum. Of those 69 elementary schools in the sample, 74% provided a mid-day recess after lunch.

The amount of students in the United States who attend physical education classes daily has been declining (www.cdc.gov/HealthyYouth/physicalactivity/promoting_health/schools). In 1994, 17% of middle schools and 2% of high schools require daily physical education. 77% of United States parents want daily physical education for their children that lasts 48 minutes and they believe that their children are receiving this amount of physical education. (Action for healthy kids, 2006). In actuality, only 8% of elementary schools provide daily physical education classes.

16.7% of elementary schools in the United States exempt students from required physical education classes (<http://www.cdc.gov/healthyyouth/shpps/factsheets/pdf/pe.pdf>). Reasons for these exemptions include high physical competency test scores, participation in other school activities, participation in community sports activities, and participation in community service activities. 25.3% of middle schools and 40% of senior high schools exempt students from required physical education classes. Reasons for these exemptions are the same for the elementary school exemptions but also include participation in school sports, enrollment in other school courses, and vocational training.

As we face an increasing amount of obese children in the United States, many states have begun to look at their current physical education policies (Fagan, 2007). Mississippi, the state with the greatest amount of obese children, now requires all children in grades K-8th to receive at least 150 hours of physical education and 45

minutes of health education per week. Physical education is mandated in elementary schools in 36 states, in middle school in 33 states, and in high school in 42 states.

Rhode Island general law on physical education states that;

“All children in grades one through twelve (12) attending public schools, or any other schools managed and controlled by the state, shall receive in those schools instruction in health and physical education under rules and regulations the Department of Elementary and Secondary Education may prescribe or approve during periods which shall average at least twenty (20) minutes in each school day. No private school or private instruction shall be approved by any school committee for the purposes of chapter 19 of this title as substantially equivalent to that required by law of a child attending a public school in the same city and/or town unless instruction in health and physical education similar to that required in public schools shall be given.” (www.riahperd.org/peframeworks.html, 9).

Rhode Island law states that health and physical education should be given for a minimum of 100 minutes per week which is lower than the national recommendations for health and physical education which is 50 hours of health education per year and 30 minutes per day of physical education for elementary schools and 50 minutes of physical education per day for high schools. Rhode Island schools provide on average 10.76 minutes of physical education per day for elementary schools, 19.6 minutes for middle schools, and 24.16 minutes for high schools.

Black students have fewer educational opportunities than white students and consistently score lower on standardized tests (Orr, 2003). The gap in test scores has lessened in the past thirty years; however, researchers predict that it will take approximately 50 years until the gap closes.

Low income students do not perform as well academically as their wealthier counterparts (http://www.kwfdn.org/fast_facts/fastfact.aspx?init=26). By the end of

fourth grade, students of low income families are on average two academic years behind students of higher income families. When students reach 8th grade, lower income students are on average three years behind higher income students in reading and mathematics. If a low income student reaches the 12th grade, he is on average four years behind a higher income student.

To solve low academic achievement, On January 8, 2002, President Bush created the “No Child left behind Act” (<http://www.ed.gov/policy/elsec/leg/esea02/107-110.pdf>). This act aimed “to close the achievement gap with accountability, flexibility, and choice, so no child is left behind” (<http://www.ed.gov/policy/elsec/leg/esea02/107-110.pdf>). It targeted the disadvantaged youth who were lagging behind academically. This law primarily focuses on reading and math skills and requires all schools to test their students annually to see if they are at grade level. All children should be at grade level by the year 2014 (<http://www.ed.gov/policy/elsec/leg/esea02/107-110.pdf>).

Every year, the nation hands out its “report card” which shows how each city is performing on standardized tests (http://nationsreportcard.gov/tuda_reading_2007/). The 2007 Nation report card showed that students are improving steadily in math but not as much in reading. Atlanta, Boston, New York, and Washington scored higher in math in 2007 than they did in 2005. Cleveland math scores dropped while all other major cities stayed the same. In eighth grade math, Atlanta, Boston, Cleveland, Houston, Los Angeles, and Washington scored higher while other districts stayed the same. Fourth grade reading in Atlanta and Washington increased and Houston decreased. On the eighth grade reading test scores improved in Atlanta, Cleveland, Houston, and Washington while other districts stayed the same. When looking at low income students,

the average fourth grade student score increased from 2005-2007 only 2/11 participating districts and in 3/11 districts for eighth grade students

(http://nationsreportcard.gov/tuda_reading_2007/).

The national report card rates each state in comparison to the national average. Each state is able to see how their students in grades four and eight compare to students across the country in those grades. If they are behind, they know that a change needs to be made to have their students perform better on the standardized tests.

Rhode Island Schools Standardized Test Scores for Fourth and Eighth Graders in Comparison to the National Average

| Subject | Grade | Year | State Average | National Average |
|----------------|--------------|-------------|----------------------|-------------------------|
| Mathematics | Fourth Grade | 1992 | 215 | 219 |
| | | 1996 | 220 | 222 |
| | | 2000 | 224 | 224 |
| | | 2003 | 230 | 234 |
| | | 2005 | 233 | 237 |
| | | 2007 | 236 | 239 |
| | | | | |
| | Eighth Grade | 1990 | 260 | 262 |
| | | 1992 | 266 | 267 |
| | | 1996 | 269 | 271 |
| | | 2000 | 269 | 272 |
| | | 2003 | 272 | 276 |
| | | 2005 | 272 | 278 |
| | | 2007 | 275 | 280 |
| Reading | Fourth Grade | 1992 | 217 | 215 |
| | | 1994 | 220 | 212 |
| | | 1998 | 218 | 213 |
| | | 2002 | 220 | 217 |
| | | 2003 | 216 | 216 |
| | | 2005 | 216 | 217 |
| | | 2007 | 219 | 220 |
| | Eighth Grade | 1998 | 264 | 261 |
| | | 2002 | 262 | 263 |
| | | 2003 | 261 | 261 |
| | | 2005 | 261 | 260 |
| | | 2007 | 258 | 261 |

| | | | | |
|---------|--------------|------|-----|-----|
| Science | Fourth Grade | 2000 | 148 | 145 |
| | | 2005 | 146 | 149 |
| | Eighth Grade | 1996 | 149 | 148 |
| | | 2000 | 148 | 148 |
| | | 2005 | 146 | 147 |
| Writing | Fourth Grade | 2002 | 157 | 153 |
| | Eighth Grade | 1998 | 148 | 148 |
| | | 2002 | 151 | 152 |
| | | | | |

Chart received from <http://www.nces.ed.gov/nationsreportcard/states/profile.asp>

As seen in this chart, Rhode Island is not doing as strong as other states in reading and math. When looking back through the years, Rhode Island students are scoring lower more often than not in comparison to the national average. Therefore, pressure is placed on Rhode Island schools to improve the test scores.

There are tremendous consequences for schools whose students are not passing the standardized tests. These consequences include replacing teachers and principals.

Many teachers are pressured to “teach to the test” rather than spend their time teaching on what they value to be important (Hammond & Wise, 1985). One teacher stated, “I spend more time testing rather than teaching” (Hammond & Wise, 320, 1985).

Life in the classroom has altered greatly due to the pressure from standardized tests (Hammond & Wise, 1985). 60% of teachers reported that the increased emphasis on testing has affected their individual teaching. 95% of teachers reported that the pressure from standardized testing has impacted another teacher’s teaching.

On teacher expresses her frustration about standardized tests when she says,

“I think it is frustrating a lot of teachers because it does limit what you can do and how you do really interact with the kids. It limits your time. Your attention is shifting from the student to will he pass this test? Or how many will pass this test? Will a majority pass the test? What happens if they don’t? How will this affect my job if they

don't? That kind of thing...It's just one more nail in the coffin. It's driving a lot of would be good teachers out of the profession" (Hammond & West, 322, 1985).

The increase of accountability of schools causes teachers to contemplate how they will teach the material in such a small amount of time (Benham, Jenkins, Wallhea, Byra, 2007). School districts have a lot of anxiety when it comes to their students passing all the tests. Many teachers and administrators concentrate only on what the students will be tested on. The No Child Left Behind Act identifies core subject areas; mathematics, reading, writing, and science. To boost test scores, some schools have chosen to eliminate subjects that are not one of these core subjects.

One subject that is not a core requirement that has gotten eliminated has been physical education (Benham et al., 2007). In 2005, The Center on Education Policy published a report that studied the impact of The No Child Left Behind act on non core subjects in 49 states and 350 school districts. Twenty-seven percent of those states and school districts said that they have seen at least a minimal reduction on physical education classes in order to spend more time on math and reading with their students.

A large city in 2001 was spending approximately \$9,452 per student in fall enrollment at a public school. A small town spends approximately \$7,697.

Physical education teachers earn on average the same as academic teachers in their district (<http://www.aft.org/salary/2004/download/releases/SalarySurvey-RI.pdf>). In Rhode Island, the average teacher salary in 2004 was \$54,809. Hiring a physical education teacher takes away money that could be used for the academics in a school (<http://www.aft.org/salary/2004/download/releases/SalarySurvey-RI.pdf>).

The modern day teachers is expected to not only teach reading and writing to students but also be a counselor and act as a parent (Aubrey, 1998). “School administrators and the public are holding teachers responsible for incompatible and unrealistic tasks beyond their expertise, knowledge, and preparation. The change has weakened the teacher’s effectiveness, enthusiasm, and incentive” (Aubrey, 277, 1999). Possibly a school’s role is not to encourage physical education and wellness. This addresses the question on whether it is the parents or the teachers’ job to ensure the wellness of a student. Many teachers want to spend their day teaching children academics. They do not think that it is necessary to stand out during recess duty. School districts need to spend money on not only physical education equipment, physical education, but also the teachers who are going to monitor the children when they are outside during recess. This is all taking away from the money and time that could be spent on improving the test scores of children in Rhode Island.

It is the job of parents to ensure that their children are healthy. Parents play a significant role in the physical activity habits that children develop. Children model the behavior of their parents as a physically active parent will encourage a child to be physically active. A physically active parent conveys to the children the importance of being active. When a parent is enthusiastic about activity, the child is more likely to enjoy themselves.

There is a link between parental and preteen physical activity (Mattocks, Ness, Deere, Tilling, Leary, Blair, & Riddoch). 5400 children and parents participated in a study that began when the mothers were pregnant. The preteens whose mothers walked or swam when they were pregnant or who had at least one parent who was physically

active were more active. There was a modest relationship between physical activity in parents and the activeness of their children.

72.9% of children have at least one parent who exercises regularly (<http://mchb.hrsa.gov/overweight/portrait/3family.htm>). 27.1% of children do not have a parent who exercises regularly. Children whose parents do not exercise regularly are at risk of becoming overweight. 17% of children who do not have a parent that exercises regularly are overweight. This number lowers to 13% when looking at children who have at least one parent that exercises.

Unlike schools, Parents are also able to limit sedentary activities such as television, computer, and Nintendo games. Children are spending more time watching television and playing video games than ever before. If parents limit the sedentary activities and promote physical activity children will lose weight and be healthier.

A study in Israel looked at factors associated with running times for seventh graders (Bronner, 1989) There was a positive correlation between girls running times and family physical activity. Parents who were physically active had daughters that ran faster than girls whose parents were not physically active.

Schools Physical Activity

This is a relational study which will examine the relationship between socioeconomic status of eleven schools and exercise resources available to each school. The sample consists of the eleven schools that were examined. It is a sample of convenience in terms of their proximity to Providence College, contacts of interviewer from the school, and availability. It is also a purposive sample of convenience for the schools had to meet certain specifications (depending on income of its students). The

schools were chosen based only on the income of its residents. The large financial gap between schools was important in order to compare physical activity in each school.

Interviews were conducted with an available faculty member at each school. Each faculty member was asked a series of questions and follow up questions depending on their answers. The following questions were asked to each faculty member regarding their school:

1. How many minutes of Physical Education per week does a student in your school receive
2. How many minutes of recess per day does a student in your school receive
3. Are there any before school or after school physical fitness activities offered to the students?
4. How many students in a class would you classify as obese or overweight?
5. Where does physical education and recess occur?
6. What equipment is available for the students during physical education and recess?

The following chart is the financial break down of the schools that were interviewed.

Financial information regarding the schools was found on the state's Department of Education website or tuition on the school's website.

| SCHOOL LETTER | % of Students Eligible for Free/Reduced Price Lunch | Tuition |
|----------------------|--|----------------|
| A | 90% | |
| B | 73% | |
| C | 72% | |
| D | 67% | |
| E | 62.2% | |
| F | 42% | |
| G | 9.6% | |
| H | 3% | |
| I | | 21,480 |
| J | | 22,215 |
| K | | 25,220 |

School classifications were made based on the percent of students that are eligible for free or reduced priced lunch. In order for a student to be eligible, their parents or guardians must have an income that is below the federal poverty level. Based on the percentage of eligible students in each school, schools were divided into four categories.

Category One: Low Income

Schools: A, B, C, D, E

Category Two: Medium Income

Schools: F

Category Three: High Income

Schools: G, H

Category Four: Private Schools

Schools: I, J, K

Interviews were conducted with faculty at each school. Roles of faculty ranged depending on who was available to talk at the school. Most of the interviews were performed via telephone but some were performed via person. Below is a synopsis of the interviews with each school.

Low Income Area Schools

School A: Location: South Bronx, NY

Interview conducted with 3rd grade teacher

| Student Body | |
|-----------------------------------|-----|
| % Eligible for Free/Reduced Lunch | 90% |
| Black/African American | 36% |
| Hispanic | 62% |
| Asian | 1% |

This interview was conducted in person at the school with a 3rd grade teacher. This teacher was in her second year of Teach For America in the south Bronx. In her first year she taught 14 students and in her second there are 19.

Physical Education

45 Minutes, One time per week

Full Time Physical Education Instructor

“Last year the students had gym upstairs on the third floor. The room was not built to be a gym. But this year we no longer have the third floor in our school so gym class is in the basement. We call this room the “inside yard”. Its also not meant to be a gym” (3rd grade teacher)

This elementary school’s physical education space has two poles in the middle of the room which are covered with aerobics mats. There are a limited amount of balls and jump ropes for the students to use.

“From what I see there is very little gym curriculum. There are some basketballs and jump ropes but not enough for every student to be using at once. Students run around the room and often get into fights. Some boys in my class would fight too much in gym so I had to take gym class away for those boys for a short time. The gym teacher does not structure the gym classes. He actually has sexual harassment law suits going against him right now”.

Recess

20 Minutes daily, but not consistent

Supervised by teacher aids

Recess occurs across the street from the school on a fenced in black top. There is one broken basketball hoop. There is no grass or playground. This area is open to the public during school hours. Very rarely will a ball or jump rope be brought out to the students.

“Recess is really a bad situation here. There are aids who are supposed to supervise the students but they do not get involved in their behavior. Often us teachers are looking out the window to make sure everyone is still alive. Recess consists of the students running around the black top with many of the boys fighting. They call it “play fighting” but it is like a kid’s version of gang fights. The fights get really awful sometimes that I need to

bring half my class down to the nurse's office at the end. Recess time is also not consistent at all. It is supposed to be 20 minutes but if two or three boys are not behaving during the day the principal will say no recess for all 3rd grade boys".

There are no after school or before school physical activities.

The teacher reported that there is not pressure to cut down on gym or recess time for the teachers need that prep time as mandated by the union. There are no organized sports at the school and the teacher says that the problem lies partially in the administration. The principal is no pursuing improvement of the facilities.

Teacher's Estimates on obesity in her 3rd grade class:

Year One: 2/14 severely obese, 0 overweight

Year Two: 1/19 obese, 3/19 overweight

School B: Location: Fall River, MA

Interview conducted with Principal

| Student Body | |
|--|-------|
| % of students receiving free/reduced Lunch | 73% |
| African American | 5.4% |
| Asian | 1.4% |
| Hispanic | 11.2% |
| White | 79.1% |

Physical Education

48 Minutes, 2 times per week

Physical education takes place in a full size gym with two basketball hoops. There is a limited amount of equipment but there are enough balls for each student in a physical education class to have one. Students learn about fitness and sports, learning a new sport every month.

There are no after or before school physical activities.

Recess

Two times per day, 15 minutes each

Teachers supervise

Recess takes place on a blacktop next to the school. There is one basketball hoop (that doesn't have a net) on the blacktop. There is no yard or playground for the children to play on.

"Kids who misbehave or need extra help will have to skip recess. I think that all kids need that time to run around but sometimes we can't give it to everyone. The only way my school will have more physical activity during the day is if we do extended day. I know another school nearby is doing that now so I'll see how it goes for them. But the kids need to be spending time on the academics, many of them are behind. We do not have time for more gym class here".

Principal's estimates on Obesity:

2/20 are obese

5 or 6/20 are overweight

School C: Location: Providence, RI

Interview conducted with Physical Education Teacher

| Student Body | |
|-----------------------------------|------|
| % Eligible for free/reduced Lunch | 72% |
| African American | 4.2% |
| Asian | 3% |
| Hispanic | 14% |
| White | 77% |

Physical Education

45 Minutes, once per week

"I try to keep all the students active in the class. I think generally they are, I keep it fairly structured. We have a gym, it's smaller than a full size one but it works for the class sizes we have. We have enough hockey sticks, volleyballs, and basketballs for every student in a class but we don't have any expensive equipment like goals or gymnastics. I usually have to use cones for goals".

Recess

25 Minutes, once per day

Teachers supervise

“We have a small yard with a few swings and the black top. There is a basketball hoop on the blacktop and the kids are allowed to bring out some basketballs. There has been talk about building a playground but I’m not sure if that is going to happen in the near future”.

Physical Education teacher’s estimates on Obesity:

2/20-obese

4/20-overweight

School D: Location: Roslindale, MA

Interview conducted with 1st grade teacher

Student Body
182 students grades K-2
Extended Day: 8 am-4pm
Charter School

| | |
|---|-----|
| % Eligible for Reduced Priced/ Free Lunch | 67% |
| African American/Black | 76% |
| Hispanic/Latin American | 21% |
| Asian | 1% |
| White | 1% |

Physical Education

50 Minutes, Once per week

“Physical education here is not equipment based. The Physical Education teacher can order supplies as long as they are not too expensive. The students do not learn traditional sports but there still is a curriculum. There are many running and fitness games taught. We have a full size gym because our school used to be a Catholic High School. There are wooden bleachers and two basketball hoops with nets.”

Dance Class

50 Minutes, once per week

“The dance teacher here starts class up with a Warm up then teaches choreography. The kids are always working on a dance. They learn specific styles of dances so there is a curriculum there too. Then if the kids are good they play some sort of , dance game at the end”.

Recess

25 minutes per day

“There was a new playground built this past summer with astro turf. There is also grass space and a blacktop for the kids to play on. In bad weather, recess will be held in the gymnasium”.

No After school Programs for Physical Activity

Physical activity in classroom: Three teachers do yoga in their class everyday.

The teacher reports that there is no pressure to cut into recess. Kids who are behind on math facts stayed inside for 10-15 minutes everyday during recess to get better at math.

This decision was made by 1st grade teachers.

Teacher's estimates of obesity in her class

1/16-obese

0 students overweight

School E: Location: Camirillo, CA

Interview conducted with 4th grade teacher

| Student Body | |
|------------------------------------|-------|
| % Receive Reduced Price/Free Lunch | 62.2% |
| American Indian | 2% |
| Asian | 3% |
| Pacific Islander | 6% |
| Filipino | 2% |
| Hispanic | 90.5% |
| African American | 2.3% |
| White | 2.3% |

Physical Education:

45 minutes, Twice per week

“In California we have no gym. Everything is outside so physical education is always outside. There is a yard that the physical education classes take place on. They learn about various sports. It is structured and has a curriculum. We have some equipment, but nothing that expensive”

After school Sports:

Some kids go to YMCA for basketball after school. They also have to do their homework there. When they finish their homework they play sports”

No P.E teacher until 1998-District could not afford it.

Recess:
20-25 Minutes, daily

“Students will eat lunch for about 15 or 20 minutes then have 20-25 minutes to play. They eat outside so they can play on the yard next to where they eat when they finish. They do not have equipment to use during this time.”

Teachers estimates on obesity:
3/20 kids overweight, no obese

Low-Medium Area Income Level Schools

School F: Location: Hyannis, MA

Interview conducted at school with Computer teacher/ recess aid

Student Body Grades K-4

| | |
|------------------------------------|-------|
| % Receive reduced price/free Lunch | 42% |
| African American | 6.4% |
| Asian | 3% |
| Hispanic | 12.8% |
| Native American | 1.4% |
| White | 63.2% |
| Natice Hawaiian, Pacific Islander | 1% |
| Multi Race | 12.2% |

Physical Education
45 minutes, Once per week
½ yr of health, 1X per week, 45 minutes

“Students learn the traditional sports, right now they are learning volleyball. They also are taught fitness taught in gym. The Physical education teacher promotes the Presidential physical fitness challenge and all the students are tested”.

Recess:
20 minutes, 2x per day
Teachers Aids supervise

The school has playground and grass area used for recess. Balls and jump ropes are brought out for the students to play with.

Afterschool Activities
20-30 kids involved, play sports

Physical Activity during Class

4th grade good behavior-kickball and floor hockey tournaments

Before School Activities

Healthy Walking

2x per week, 20 minutes

Large participation

Promoting healthy snacks

Teacher's estimates on Obesity:

1/20 obese

6/20 overweight

Girls heavier than boys

High Area Income Level Schools

School G: Location: Seekonk, MA

Interview conducted with 1st grade teacher

Student Body

| | |
|---------------------------------------|-------|
| % Receiving reduced priced/free Lunch | 9.6% |
| African American | 1.5% |
| Asian | 2.1% |
| Hispanic | 2.7% |
| White | 92.4% |

Physical Education

45 Minutes, Once per week

“Gym takes place in a big gym with lots of equipment, including gymnastics equipment. My class seems to get a good work out each gym class, they always come back tired. I know this week they are doing games with scooters.”

After school Activity: 20% of school participates in the after school sports program. The kids can choose between Kung Fu and Soccer. Each meet for an hour a week after school.

Kung Fu: 5/22 participate in 1st grade class

Soccer: 6/22 participate in 1st grade class

Recess

Two recess periods per day

Morning: 10 minutes

Afternoon: 25 minutes

Aids Supervise

There is a new Playground, grass, and a blacktop with two basketball hoops. Balls and jump ropes are brought out to play with.

Teacher's estimates on obesity in class :

1/22-overweight

No obese

School H: Location: Farmington, CT

Interview conducted with Physical Education teacher at the school

Student Body

K-4

341 Students

| | |
|---|-------|
| % Eligible for Reduced Price/Free Lunch | 3% |
| American Indian | 0% |
| Asian | 6.7% |
| Black | 4.1% |
| Hispanic | 2.9% |
| White | 86.2% |

Physical Education

45 minutes, Twice per week

“Gym class takes place in our gym and outside on the soccer field when the weather is nice. I have a curriculum and keep a very structured class. Students stay active for about 95% of the class. We have all the equipment including gymnastics beams, bars, vaults and mats so we are able to have a lot of activity at once”

Afterschool Gym: Every day there is after school gym activities. Each grade will have at least one day a week they can stay after for gym.

Early Bird Gym: Every morning before school there is “early bird gym”. Like after school gym, each grade will have at least one day a week they can come in early for gym class. Many of the students take advantage of this.

Olympic Program

“Every four years we have the school Olympics. Every class is assigned a country and they learn about that country throughout the year. I started the Olympic program here in 1982. Every student in the school participates in the sporting events which are held in gym class, after school, or at night for the parents, depending on the event. We have the

opening ceremonies in September and the closing ones in June. Not only do the students get to compete athletically but what is most important to me is that they learn about the importance of participation in athletics”

Cross Country and Hershey Track

“Every spring and fall there is a town track meet. Most 3rd and 4th grade students participate. All 3rd and 4th graders in the town come to our school for the cross country meet in the Fall and we go to the high school for the Hershey track meet in the spring. Again, participation is tremendous’.

Recess

20 Minutes, twice per day

A new boundless playground was built over the summer so special needs students can also use the playground. Students have recess on the black top, grass area, and playground. Teachers supervise.

According to the Physical Education teacher there are not many obese children, 2/20 would be considered overweight

Highest Income: Private Schools

School I: Location: Providence, RI

Interview conducted with Athletic Director

Tuition: \$21,480

Physical Education

45 minutes, 3 times per week

All equipment

“We have a full size gym and many outdoor fields where gym class is held. The students in the lower school learn about all the sports and fitness and then when they get to the middle school they play on the school’s team”

Recess

30 minutes everyday

Aids Supervise

Lots of equipment is used during recess. Balls, goals, baseball bats.

Athletic Director’s estimates on Obesity:

1/20

3/20

School's Mission on Athletics:

“we see our athletic fields and courts as an extension of the classroom – coaches teach specialized skills while emphasizing the values of commitment, hard work, and team work. Respect for individual strengths and differences, as well as for opponents and officials, is very important to us here. Coaches serve as teachers on the field and court as each athlete is taught to take charge of his or her own growth and success, to take risks, and to win and lose with equal grace, dignity, and sportsmanship” (School's website)

School J: Location: West Hartford, CT

Interview conducted with School Nurse at the school

Student Body

309 students PK-5

Tuition:

Pre Kindergarten: \$11,600

Kindergarten: \$18,840

Grades 1-5 \$22,215

The Campus:

“Seventy-five acres of woodlands, wetlands, fields and gardens; four athletic fields, a high-and low-ropes course; three playgrounds, plus a natural pond for science study and winter sports. Teaching space includes 10 buildings, nine science and technology labs, six music and art studios, two theaters, a dining commons, and library.” (School Website)

Physical Education

45 Minutes- 2-3 times per week

5 Full Time Gym teachers

Fitness, gymnastics, all equipment, all sports, dance

In ground pool when weather is nice

No After school activities

Recess:

30 Minutes, daily

Playground, grass area

Aids Supervise

Nurse reports there are no obese children, a small amount are slightly overweight.

School K: Location: Hartford, CT

Interview conducted with School Nurse

Tuition 2006-2007 School Year: \$25,220.00

Student Body:

275 Day students

Grades: 6-PG.

Students reside primarily in the Greater Hartford Area towns.

School's Mission On Athletics

“Along with varsity sports, also offers a middle school athletics program allowing every athlete an opportunity for maximum participation while learning fundamentals. Sportsmanship is a high priority with all our teams. We also encourage participation in non-competitive offerings. Students set and achieve personal goals, building self-esteem by challenging their limits in activities such as martial arts, dance, yoga, and weight training. We emphasize an appreciation for exercise and lifelong habits for healthy living. Our goal is to improve a student's level of fitness and to increase awareness and knowledge of the human body. In the classroom, students learn about cardiac and aerobic fitness, nutrition, decision-making, peer pressure, self-esteem, and other topics.” (School Website)

The School Nurse on 6th Graders

6th graders have physical activity everyday. Activity will vary depending on the season. Students pick their own activity. Activities range from yoga, floor hockey, circus arts, and outdoor sports. Daily Physical activity is 5 days a week, for one hour a day.

There is no designated recess time for 6th graders. If a student has a study hall, they are allowed to use that time to go outside. Many of the students do and they play basketball outside.

Every 6th grade student gets 15 minutes per day of “community time”. During community time, the student is allowed to go outside for a break. Sports equipment is available for the students to use during this time.

6th graders take a “Healthy living class” which meets 2-3 times a week for 45 minute periods. Here they learn about the importance of exercise and nutrition to live a healthy lifestyle.

Every 6th grade student can participate in after school activities. Many of the sports teams have a JV team. Everyone “makes” the team regardless of ability. Once on the team, coaches will separate according to ability.

Watkinson feels pressure to keep their athletics strong. Because athletics is a big draw for admissions, the school does not feel that they should cut down on the amount of attention that goes towards their physical activity.

The nurse does not feel that obesity is a major concern at the school. “Most of the children I see are generally fit and are not overweight. Of course there are a few

exceptions but the majority seem to eat well and are extremely active. Parents have been nothing but supportive in keeping healthy habits at home”.

School Summaries

Low Income Averages:

Average recess time: 24 Minutes per day

Average Physical Education time per week: 64.2 minutes per week

Low-Medium Income

Recess time: 40 Minutes per day

Physical education: 45 Minutes per week

High Income

Average recess time: 37.5 Minutes per day

Average Physical education time per week: 70 Minutes per week

Highest Income: Private Schools

Average recess time: 25 Minutes per day

Average Physical Education Time: 190 Minutes per week

When comparing the average minutes of recess per day, there is a general increase of minutes per day when the income of the school is higher. The lowest level of income in the South Bronx has twenty minutes of recess and it is no consistent. As the income increases, students are consistently getting time during the day for recess, with the high income average of 37.5 minutes per day.

Results show that the facilities greatly improve for recess when a student attends a school with a higher income. Students in the South Bronx, NY and Fall River, MA have only a blacktop with no equipment to play on during recess. Students of the same age who attend the private school in West Hartford, CT have many athletic fields, a ropes course, and playground available to them.

Physical Education also plays a different role in the school depending on income. In the lower income level schools, physical education does not receive the same attention

that it receives in the higher income level schools. Curriculum and structure is a major indicator of the importance of physical education to the school. The lower income level schools do not have all the equipment to be teaching the students about many different sports. Even without the equipment however, some physical education teachers are keeping the students active for the majority of the class period. The school in the South Bronx, a school without curriculum or structure in physical education, is unable to keep the children active. These results indicate that the income level of the school is not the sole determiner of the physical activity that occurs in physical education class. Instead, a large determiner is the dedication of the physical education teacher. A physical education teacher who is determined to keep the students active will do so with only limited equipment available.

Results show that not only does the amount of time in physical education increase as income level increases, but also the opportunities for physical education available to students. In the lower incomes there are no opportunities for physical activity at school before or after school. Once the school is at a low-medium level of income there are both before and after school physical education activities. This increases even more in the highest income level at a public school where there is the Olympic program which was started by the physical education instructor.

Conclusion

When looking at the funding and physical education availability it helps explain the reason why more children are overweight or obese in the lower income schools. Research has shown that students of a lower socioeconomic status are more likely to be

overweight or obese than students of a higher socioeconomic status. Students in the higher incomes have more time spent on physical education and recess.

The lower income teachers must spend time managing behavior. In private schools, if a student is too disruptive to the class, the school will ask the family to no longer attend the school. As a result, students in the private school are all attending recess and physical education.

Obesity has been on the rise in the past twenty years, especially in areas of low socioeconomic groups. This study looked to find if there is a difference of physical activity in schools depending on income. School faculty members were interviewed for information regarding time spent on physical activity during a school day, equipment available, and extra curricular activities. The hypothesis was that as income increases, the level of physical activity also increases. This hypothesis was somewhat agreeable with the findings.

The amount of time students spent being physically active increased as income increased during the day. Students of higher income levels were spending more time in physical education and more time during recess in a given school day. The level of activity in a physical education class did not depend on income, but rather the physical education teacher's dedication to keeping students active. Students of low income levels were staying active throughout the class period just as students of higher income levels are.

On a whole, students from a higher socioeconomic group have more available to them to be physically active than students of a lower socioeconomic group. This study is

supporting the research that children living in a lower income area are more prone to become obese than students of a higher income area.

Physical activity habits are formed in childhood which can cause lasting physical, mental and emotional consequences. Children who are not learning the necessary skills to be physically active in their school are opening the doors to these negative consequences later in life.

Social work must protect the vulnerable population. Through no fault of their own, students in low income areas are not being exposed to healthy physical activity habits necessary for life. Social workers must advocate for the low income population to ensure that children of a low socioeconomic group are receiving an adequate amount of time in physical education.

The national recommendations for physical education in an elementary school are that students receive 30 minutes a day of physical education. From the schools that were interviewed, zero of the schools were receiving mandatory physical education that lasts 30 minutes a day. Even though students in a low income school must be advocated for, students of all incomes should be receiving more physical education than they receive now. Social workers must ensure that vulnerable populations such as children are receiving the adequate time in physical education. For lack of physical education is a gateway to mental, emotional, and other physical health problems later in life.

The obesity crisis has become an epidemic in all socioeconomic groups. The only way physical education standards can be enforced is by advocating for the students through the superintendent of schools in each district. In talking with teachers, many believed that the students health needs to become more of a priority in the school,

especially in the low income school. The Fall River, MA principal agreed with this statement but said the only way this can happen is through an extended day. Social workers must seek out the decision makers in the area to ensure the children are learning the basic health habits in elementary school.

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